



# DATA VALIDATION REPORT

Gold King Mine Follow-Up Monitoring

SAMPLE DELIVERY GROUP: 680-127760-1

Prepared by

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## I. INTRODUCTION

Task Order Title: Gold King Mine Follow-Up Monitoring  
Project No.: 20408.012.001.0285.00  
Sample Delivery Group: 680-127760-1  
EPA Project Manager: Steve Merritt  
Weston Project Manager: Mark Blanchard  
TDD No.: 0001/1510-02  
Matrix: Water  
QC Level: Stage 2A  
No. of Samples: 6  
No. of Reanalyses/Dilutions: 0  
Laboratory: TestAmerica - Denver

**Table 1. Sample Identification**

<i>Location ID</i>	<i>Lab Sample Name</i>	<i>Matrix Type</i>	<i>Collection Date</i>	<i>Method</i>
<b>CC18_071916_1155</b>	680-127760-3	Water	7/19/16 11:55 AM	200.7, 200.8, 245.1, 2540 D
<b>GSTC_071916_1515</b>	680-127760-5	Water	7/19/16 3:15 PM	200.7, 200.8, 245.1, 2540 D
<b>GSTI_071916_1136</b>	680-127760-2	Water	7/19/16 11:36 AM	200.7, 200.8, 245.1, 2540 D
<b>GSTI_DUP_071916_1136</b>	680-127760-6	Water	7/19/16 11:36 AM	200.7, 200.8, 245.1, 2540 D
<b>GSTO_071916_1445</b>	680-127760-4	Water	7/19/16 2:45 PM	200.7, 200.8, 245.1, 2540 D
<b>GSTPO_071916_100</b>	680-127760-1	Water	7/19/16 11:00 AM	200.7, 200.8, 245.1, 2540 D

## II. Sample Management

The samples were received within the temperature limits of 4°C ±2°C. The samples were received intact, on ice, and properly preserved. The chains-of-custody (COCs) were appropriately signed and dated by field and laboratory personnel. The presence or absence of custody seals on the cooler was not specifically noted.



**Data Qualifier Reference Table**

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
UB	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.





Qualifier	Organics	Inorganics
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
UJB	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.



**Qualification Code Reference Table**

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.





Qualifier	Organics	Inorganics
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.





### III. Method Analyses

#### A. Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, 200.7, 200.8, 245.1—Metals and Mercury

Reviewed By: M. Hilchey

Date Reviewed: August 30, 2016

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U.S. EPA Region 8 CERCLA Site Assessment, Sampling and Analysis Plan/Quality Assurance Project Plan for Gold King Mine Release, Silverton, San Juan County, Colorado* (2015), *United States Environmental Protection Agency Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, EPA Methods 200.7, 200.8 and 245.1*, and the *National Functional Guidelines for Inorganic Superfund Data Review* (2010).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Analytical Method Blanks: No target analytes were reported in the method blanks above the MDL.
- Laboratory Control Samples (LCS): The recoveries were within laboratory control limits of 85-115%.
- Laboratory Duplicates: Laboratory duplicate analyses were not performed on a sample from this SDG. Method precision was evaluated based on matrix spike/matrix spike duplicate results.
- Matrix Spike/Matrix Spike Duplicate (MS/MSD): MS/MSD analyses were performed on sample GSTPO\_071916\_100 for all methods. Results were not assessed when the native concentration was more than 4× the spike amount. The recoveries were within the laboratory control limits of 75-125% for the 200.7 analytes and within 70-130% for mercury and the 200.8 analytes. The RPDs were ≤20%.
- Post Digestion Spike: There were no post digestion spike analyses performed on a sample in this SDG.
- Serial Dilution: Serial dilution analyses were not performed.
- Field QC Samples: MEC<sup>x</sup> evaluated field quality control (QC) samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of





the field QC data. MEC<sup>x</sup> used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

- Field Blanks and Equipment Rinsates: Field blank or equipment blank samples were not identified for this SDG.
- Field Duplicates: Samples GSTI\_071916\_1136 and GSTI\_DUP\_071916\_1136 were identified as a field duplicate pair. The RPDs for total potassium (70.2%) and total sodium (89.5%) exceeded the control limit of  $\leq 30\%$ . Associated results for the field duplicate samples were qualified as estimated (J).

Copper, manganese and zinc; total and dissolved in several samples were flagged by the laboratory as exceeding the linear range of the instrument.

## **B. Method SM2540D-2011—Total Suspended Solids**

Reviewed By: M. Hilchey

Date Reviewed: August 30, 2016

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U.S. EPA Region 8 CERCLA Site Assessment, Sampling and Analysis Plan/Quality Assurance Project Plan for Gold King Mine Release, Silverton, San Juan County, Colorado* (2015), *United States Environmental Protection Agency Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, Standard Methods for the Examination of Water and Wastewater 2540D*, and the *National Functional Guidelines for Superfund Inorganic Data Review* (2010).

- Holding Times: Total suspended solids (TSS) was analyzed within the required holding time of 7 days.
- Analytical Method Blanks: There were no detects in the method blank.
- Laboratory Control Samples: LCS/LCSD recoveries were within the laboratory control limits of 80-120%, and RPDs were within the QAPP control limit of  $\leq 20\%$ .
- Laboratory Duplicates: Laboratory duplicate analyses were not performed on a sample from this SDG. Method precision was evaluated based on LCS/LCSD results.
- Matrix Spike/Matrix Spike Duplicate (MS/MSD): MS/MSD analyses were not performed. Accuracy and precision were evaluated based upon the LCS/LCSD results.
- Field QC Samples: MEC<sup>x</sup> evaluated field quality control (QC) samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of





the field QC data. MEC<sup>x</sup> used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

- Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
- Field Duplicates: Samples GSTI\_071916\_1136 and GSTI\_DUP\_071916\_1136 were identified as a field duplicate pair. The RPD was within the reasonable control limit of  $\leq 30\%$ .



# Validated Sample Result Forms: 680-127760-1

*Analysis Method* 200.7 Rev 4.4

**Sample Name** GSTPO\_071916\_100

**Matrix Type:** Water

**Lab Sample Name:** 680-127760-1

**Sample Date:** 7/19/2016 11:00:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	39000	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	37000	200	24	ug/L			
Calcium	T	7440-70-2	370000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	350000	500	25	ug/L			
Iron	T	7439-89-6	130000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	110000	50	17	ug/L			
Magnesium	T	7439-95-4	25000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	24000	500	33	ug/L			
Potassium	T	7440-09-7	2300	1000	17	ug/L			
Potassium, Dissolved	D	7440-09-7	2300	1000	17	ug/L			
Sodium	T	7440-23-5	4300	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	4000	1000	480	ug/L			

**Sample Name** GSTI\_071916\_1136

**Matrix Type:** Water

**Lab Sample Name:** 680-127760-2

**Sample Date:** 7/19/2016 11:36:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	40000	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	37000	200	24	ug/L			
Calcium	T	7440-70-2	380000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	360000	500	25	ug/L			
Iron	T	7439-89-6	150000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	110000	50	17	ug/L			
Magnesium	T	7439-95-4	26000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	25000	500	33	ug/L			
Potassium	T	7440-09-7	2400	1000	17	ug/L		J	F1
Potassium, Dissolved	D	7440-09-7	2300	1000	17	ug/L			
Sodium	T	7440-23-5	4200	1000	480	ug/L		J	F1
Sodium, Dissolved	D	7440-23-5	4100	1000	480	ug/L			



## Analysis Method 200.7 Rev 4.4

Sample Name		CC18_071916_1155				Matrix Type: Water			
Lab Sample Name:		680-127760-3		Sample Date:		7/19/2016 11:55:00 AM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	2500	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	2000	200	24	ug/L			
Calcium	T	7440-70-2	120000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	110000	500	25	ug/L			
Iron	T	7439-89-6	13000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	12000	50	17	ug/L			
Magnesium	T	7439-95-4	9100	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	9000	500	33	ug/L			
Potassium	T	7440-09-7	790	1000	17	ug/L	J	J	
Potassium, Dissolved	D	7440-09-7	780	1000	17	ug/L	J	J	
Sodium	T	7440-23-5	2400	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	2500	1000	480	ug/L			

Sample Name		GSTO_071916_1445				Matrix Type: Water			
Lab Sample Name:		680-127760-4		Sample Date:		7/19/2016 2:45:00 PM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	1500	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	1100	200	24	ug/L			
Calcium	T	7440-70-2	610000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	560000	500	25	ug/L			
Iron	T	7439-89-6	620	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	17	50	17	ug/L	U	U	
Magnesium	T	7439-95-4	13000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	12000	500	33	ug/L			
Potassium	T	7440-09-7	2500	1000	17	ug/L			
Potassium, Dissolved	D	7440-09-7	2400	1000	17	ug/L			
Sodium	T	7440-23-5	5000	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	4600	1000	480	ug/L			

Sample Name		GSTC_071916_1515					Matrix Type: Water		
Lab Sample Name:		680-127760-5		Sample Date:		7/19/2016 3:15:00 PM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	39000	200	24	ug/L			



## Analysis Method 200.7 Rev 4.4

Aluminum, Dissolved	D	7429-90-5	1300	200	24	ug/L			
Calcium	T	7440-70-2	630000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	570000	500	25	ug/L			
Iron	T	7439-89-6	130000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	200	50	17	ug/L			
Magnesium	T	7439-95-4	27000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	17000	500	33	ug/L			
Potassium	T	7440-09-7	2600	1000	17	ug/L			
Potassium, Dissolved	D	7440-09-7	2400	1000	17	ug/L			
Sodium	T	7440-23-5	4300	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	4600	1000	480	ug/L			

**Sample Name** GSTI\_DUP\_071916\_1136

**Matrix Type:** Water

**Lab Sample Name:** 680-127760-6

**Sample Date:** 7/19/2016 11:36:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	37000	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	37000	200	24	ug/L			
Calcium	T	7440-70-2	350000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	350000	500	25	ug/L			
Iron	T	7439-89-6	140000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	110000	50	17	ug/L			
Magnesium	T	7439-95-4	24000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	24000	500	33	ug/L			
Potassium	T	7440-09-7	5000	1000	17	ug/L		J	F1
Potassium, Dissolved	D	7440-09-7	2400	1000	17	ug/L			
Sodium	T	7440-23-5	11000	1000	480	ug/L		J	F1
Sodium, Dissolved	D	7440-23-5	4100	1000	480	ug/L			

## Analysis Method 200.8

**Sample Name** GSTPO\_071916\_100

**Matrix Type:** Water

**Lab Sample Name:** 680-127760-1

**Sample Date:** 7/19/2016 11:00:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	2.7	1	0.4	ug/L			
Antimony, Dissolved	D	7440-36-0	1.3	1	0.4	ug/L	^		
Arsenic	T	7440-38-2	42	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	19	1	0.37	ug/L			
Barium	T	7440-39-3	10	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	11	2	0.14	ug/L	^		



## Analysis Method 200.8

Beryllium	T	7440-41-7	8.3	0.4	0.15	ug/L	
Beryllium, Dissolved	D	7440-41-7	7.6	0.4	0.15	ug/L	
Cadmium	T	7440-43-9	91	0.5	0.043	ug/L	
Cadmium, Dissolved	D	7440-43-9	95	0.5	0.043	ug/L	
Chromium	T	7440-47-3	5.6	2	1	ug/L	
Chromium, Dissolved	D	7440-47-3	5	2	1	ug/L	
Cobalt	T	7440-48-4	97	0.4	0.12	ug/L	
Cobalt, Dissolved	D	7440-48-4	87	0.4	0.12	ug/L	
Copper	T	7440-50-8	7400	5	0.5	ug/L	E
Copper, Dissolved	D	7440-50-8	6600	5	0.5	ug/L	E
Lead	T	7439-92-1	33	0.3	0.06	ug/L	^
Lead, Dissolved	D	7439-92-1	35	0.3	0.06	ug/L	^
Manganese	T	7439-96-5	25000	2.5	1.2	ug/L	E
Manganese, Dissolved	D	7439-96-5	23000	2.5	1.2	ug/L	E
Molybdenum	T	7439-98-7	4.2	1	0.45	ug/L	
Molybdenum, Dissolved	D	7439-98-7	1.9	1	0.45	ug/L	
Nickel	T	7440-02-0	59	5	0.4	ug/L	
Nickel, Dissolved	D	7440-02-0	54	5	0.4	ug/L	
Selenium	T	7782-49-2	2.2	2	0.58	ug/L	
Selenium, Dissolved	D	7782-49-2	2.1	2	0.58	ug/L	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U
Thallium	T	7440-28-0	0.34	0.2	0.1	ug/L	^
Thallium, Dissolved	D	7440-28-0	0.4	0.2	0.1	ug/L	^
Vanadium	T	7440-62-2	21	1	0.3	ug/L	
Vanadium, Dissolved	D	7440-62-2	8.8	1	0.3	ug/L	
Zinc	T	7440-66-6	24000	20	2.8	ug/L	E
Zinc, Dissolved	D	7440-66-6	21000	20	2.8	ug/L	E

**Sample Name** GSTI\_071916\_1136

**Matrix Type:** Water

**Lab Sample Name:** 680-127760-2

**Sample Date:** 7/19/2016 11:36:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	4.6	1	0.4	ug/L	^		
Antimony, Dissolved	D	7440-36-0	1.3	1	0.4	ug/L	^		
Arsenic	T	7440-38-2	65	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	22	1	0.37	ug/L			
Barium	T	7440-39-3	11	2	0.14	ug/L	^		
Barium, Dissolved	D	7440-39-3	11	2	0.14	ug/L	^		
Beryllium	T	7440-41-7	8	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	7.7	0.4	0.15	ug/L			



## Analysis Method 200.8

Cadmium	T	7440-43-9	93	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	98	0.5	0.043	ug/L			
Chromium	T	7440-47-3	5.8	2	1	ug/L			
Chromium, Dissolved	D	7440-47-3	4.9	2	1	ug/L			
Cobalt	T	7440-48-4	91	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	87	0.4	0.12	ug/L			
Copper	T	7440-50-8	7000	5	0.5	ug/L	E		
Copper, Dissolved	D	7440-50-8	6700	5	0.5	ug/L	E		
Lead	T	7439-92-1	38	0.3	0.06	ug/L	^		
Lead, Dissolved	D	7439-92-1	35	0.3	0.06	ug/L	^		
Manganese	T	7439-96-5	24000	2.5	1.2	ug/L	E		
Manganese, Dissolved	D	7439-96-5	23000	2.5	1.2	ug/L	E		
Molybdenum	T	7439-98-7	7	1	0.45	ug/L			
Molybdenum, Dissolved	D	7439-98-7	2	1	0.45	ug/L			
Nickel	T	7440-02-0	55	5	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	55	5	0.4	ug/L			
Selenium	T	7782-49-2	2.7	2	0.58	ug/L			
Selenium, Dissolved	D	7782-49-2	2.3	2	0.58	ug/L			
Silver	T	7440-22-4	0.1	1	0.1	ug/L	J	J	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.38	0.2	0.1	ug/L	^		
Thallium, Dissolved	D	7440-28-0	0.42	0.2	0.1	ug/L	^		
Vanadium	T	7440-62-2	35	1	0.3	ug/L			
Vanadium, Dissolved	D	7440-62-2	8.5	1	0.3	ug/L			
Zinc	T	7440-66-6	22000	20	2.8	ug/L	E		
Zinc, Dissolved	D	7440-66-6	22000	20	2.8	ug/L	E		

**Sample Name** CC18\_071916\_1155

**Matrix Type:** Water

**Lab Sample Name:** 680-127760-3

**Sample Date:** 7/19/2016 11:55:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U ^	U	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U ^	U	
Arsenic	T	7440-38-2	0.41	1	0.37	ug/L	J	J	
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	23	2	0.14	ug/L	^		
Barium, Dissolved	D	7440-39-3	23	2	0.14	ug/L	^		
Beryllium	T	7440-41-7	1.2	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	1.1	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	10	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	10	0.5	0.043	ug/L			



## Analysis Method 200.8

Chromium	T	7440-47-3	1	2	1	ug/L	U	<b>U</b>
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	<b>U</b>
Cobalt	T	7440-48-4	20	0.4	0.12	ug/L		
Cobalt, Dissolved	D	7440-48-4	19	0.4	0.12	ug/L		
Copper	T	7440-50-8	86	5	0.5	ug/L		
Copper, Dissolved	D	7440-50-8	78	5	0.5	ug/L		
Lead	T	7439-92-1	19	0.3	0.06	ug/L	^	
Lead, Dissolved	D	7439-92-1	15	0.3	0.06	ug/L	^	
Manganese	T	7439-96-5	7400	2.5	1.2	ug/L	E	
Manganese, Dissolved	D	7439-96-5	6800	2.5	1.2	ug/L	E	
Molybdenum	T	7439-98-7	0.45	1	0.45	ug/L	U	<b>U</b>
Molybdenum, Dissolved	D	7439-98-7	0.45	1	0.45	ug/L	U	<b>U</b>
Nickel	T	7440-02-0	13	5	0.4	ug/L		
Nickel, Dissolved	D	7440-02-0	13	5	0.4	ug/L		
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	<b>U</b>
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	<b>U</b>
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	<b>U</b>
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	<b>U</b>
Thallium	T	7440-28-0	0.1	0.2	0.1	ug/L	U ^	<b>U</b>
Thallium, Dissolved	D	7440-28-0	0.1	0.2	0.1	ug/L	U ^	<b>U</b>
Vanadium	T	7440-62-2	0.5	1	0.3	ug/L	J	<b>J</b>
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	<b>U</b>
Zinc	T	7440-66-6	3500	20	2.8	ug/L		
Zinc, Dissolved	D	7440-66-6	3200	20	2.8	ug/L		

**Sample Name** GSTO\_071916\_1445

**Matrix Type:** Water

**Lab Sample Name:** 680-127760-4

**Sample Date:** 7/19/2016 2:45:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U ^	<b>U</b>	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U ^	<b>U</b>	
Arsenic	T	7440-38-2	0.37	1	0.37	ug/L	U	<b>U</b>	
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	<b>U</b>	
Barium	T	7440-39-3	8.7	2	0.14	ug/L	^		
Barium, Dissolved	D	7440-39-3	8.6	2	0.14	ug/L	^		
Beryllium	T	7440-41-7	0.15	0.4	0.15	ug/L	U	<b>U</b>	
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U	<b>U</b>	
Cadmium	T	7440-43-9	1.9	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	1.4	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	<b>U</b>	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	<b>U</b>	



## Analysis Method 200.8

Cobalt	T	7440-48-4	2.3	0.4	0.12	ug/L		
Cobalt, Dissolved	D	7440-48-4	1.6	0.4	0.12	ug/L		
Copper	T	7440-50-8	30	5	0.5	ug/L		
Copper, Dissolved	D	7440-50-8	2.4	5	0.5	ug/L	J	J
Lead	T	7439-92-1	0.53	0.3	0.06	ug/L	^	
Lead, Dissolved	D	7439-92-1	0.06	0.3	0.06	ug/L	U ^	U
Manganese	T	7439-96-5	4800	2.5	1.2	ug/L	E	
Manganese, Dissolved	D	7439-96-5	4400	2.5	1.2	ug/L	E	
Molybdenum	T	7439-98-7	2.2	1	0.45	ug/L		
Molybdenum, Dissolved	D	7439-98-7	2.1	1	0.45	ug/L		
Nickel	T	7440-02-0	2.8	5	0.4	ug/L	J	J
Nickel, Dissolved	D	7440-02-0	3.8	5	0.4	ug/L	J	J
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U
Selenium, Dissolved	D	7782-49-2	0.6	2	0.58	ug/L	J	J
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U
Thallium	T	7440-28-0	0.31	0.2	0.1	ug/L	^	
Thallium, Dissolved	D	7440-28-0	0.32	0.2	0.1	ug/L	^	
Vanadium	T	7440-62-2	0.33	1	0.3	ug/L	J	J
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U
Zinc	T	7440-66-6	140	20	2.8	ug/L		
Zinc, Dissolved	D	7440-66-6	26	20	2.8	ug/L		

**Sample Name** GSTC\_071916\_1515

**Matrix Type:** Water

**Lab Sample Name:** 680-127760-5

**Sample Date:** 7/19/2016 3:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	3	1	0.4	ug/L	^		
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U ^	U	
Arsenic	T	7440-38-2	46	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	17	2	0.14	ug/L	^		
Barium, Dissolved	D	7440-39-3	11	2	0.14	ug/L	^		
Beryllium	T	7440-41-7	8	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Cadmium	T	7440-43-9	97	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	1.8	0.5	0.043	ug/L			
Chromium	T	7440-47-3	10	2	1	ug/L			
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	92	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	2.4	0.4	0.12	ug/L			



## Analysis Method 200.8

Copper	T	7440-50-8	6900	5	0.5	ug/L	E		
Copper, Dissolved	D	7440-50-8	13	5	0.5	ug/L			
Lead	T	7439-92-1	48	0.3	0.06	ug/L	^		
Lead, Dissolved	D	7439-92-1	0.14	0.3	0.06	ug/L	J ^	J	
Manganese	T	7439-96-5	24000	2.5	1.2	ug/L	E		
Manganese, Dissolved	D	7439-96-5	6500	2.5	1.2	ug/L	E		
Molybdenum	T	7439-98-7	5.3	1	0.45	ug/L			
Molybdenum, Dissolved	D	7439-98-7	1.6	1	0.45	ug/L			
Nickel	T	7440-02-0	67	5	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	4.6	5	0.4	ug/L	J	J	
Selenium	T	7782-49-2	2.5	2	0.58	ug/L			
Selenium, Dissolved	D	7782-49-2	0.7	2	0.58	ug/L	J	J	
Silver	T	7440-22-4	0.11	1	0.1	ug/L	J	J	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.42	0.2	0.1	ug/L	^		
Thallium, Dissolved	D	7440-28-0	0.39	0.2	0.1	ug/L	^		
Vanadium	T	7440-62-2	56	1	0.3	ug/L			
Vanadium, Dissolved	D	7440-62-2	0.32	1	0.3	ug/L	J	J	
Zinc	T	7440-66-6	22000	20	2.8	ug/L	E		
Zinc, Dissolved	D	7440-66-6	60	20	2.8	ug/L			

**Sample Name** GSTI\_DUP\_071916\_1136

**Matrix Type:** Water

**Lab Sample Name:** 680-127760-6

**Sample Date:** 7/19/2016 11:36:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	4.7	1	0.4	ug/L	^		
Antimony, Dissolved	D	7440-36-0	1.4	1	0.4	ug/L	^		
Arsenic	T	7440-38-2	63	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	21	1	0.37	ug/L			
Barium	T	7440-39-3	11	2	0.14	ug/L	^		
Barium, Dissolved	D	7440-39-3	11	2	0.14	ug/L	^		
Beryllium	T	7440-41-7	7.4	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	7.4	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	93	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	98	0.5	0.043	ug/L			
Chromium	T	7440-47-3	6	2	1	ug/L			
Chromium, Dissolved	D	7440-47-3	4.9	2	1	ug/L			
Cobalt	T	7440-48-4	86	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	85	0.4	0.12	ug/L			
Copper	T	7440-50-8	6600	5	0.5	ug/L	E		
Copper, Dissolved	D	7440-50-8	6500	5	0.5	ug/L	E		



## Analysis Method 200.8

Lead	T	7439-92-1	41	0.3	0.06	ug/L	^		
Lead, Dissolved	D	7439-92-1	36	0.3	0.06	ug/L	^		
Manganese	T	7439-96-5	23000	2.5	1.2	ug/L	E		
Manganese, Dissolved	D	7439-96-5	22000	2.5	1.2	ug/L	E		
Molybdenum	T	7439-98-7	6.9	1	0.45	ug/L			
Molybdenum, Dissolved	D	7439-98-7	2	1	0.45	ug/L			
Nickel	T	7440-02-0	53	5	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	55	5	0.4	ug/L			
Selenium	T	7782-49-2	2.6	2	0.58	ug/L			
Selenium, Dissolved	D	7782-49-2	2.2	2	0.58	ug/L			
Silver	T	7440-22-4	0.72	1	0.1	ug/L	J	J	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.37	0.2	0.1	ug/L	^		
Thallium, Dissolved	D	7440-28-0	0.44	0.2	0.1	ug/L	^		
Vanadium	T	7440-62-2	34	1	0.3	ug/L			
Vanadium, Dissolved	D	7440-62-2	8.7	1	0.3	ug/L			
Zinc	T	7440-66-6	21000	20	2.8	ug/L	E		
Zinc, Dissolved	D	7440-66-6	21000	20	2.8	ug/L	E		

## Analysis Method 245.1

**Sample Name** GSTPO\_071916\_100 **Matrix Type:** Water

**Lab Sample Name:** 680-127760-1 **Sample Date:** 7/19/2016 11:00:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

**Sample Name** GSTI\_071916\_1136 **Matrix Type:** Water

**Lab Sample Name:** 680-127760-2 **Sample Date:** 7/19/2016 11:36:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

**Sample Name** CC18\_071916\_1155 **Matrix Type:** Water

**Lab Sample Name:** 680-127760-3 **Sample Date:** 7/19/2016 11:55:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	



## Analysis Method 245.1

**Sample Name** GSTO\_071916\_1445 **Matrix Type:** Water  
**Lab Sample Name:** 680-127760-4 **Sample Date:** 7/19/2016 2:45:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

**Sample Name** GSTC\_071916\_1515 **Matrix Type:** Water  
**Lab Sample Name:** 680-127760-5 **Sample Date:** 7/19/2016 3:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

**Sample Name** GSTI\_DUP\_071916\_1136 **Matrix Type:** Water  
**Lab Sample Name:** 680-127760-6 **Sample Date:** 7/19/2016 11:36:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

## Analysis Method 2540 D-2011

**Sample Name** GSTPO\_071916\_100 **Matrix Type:** Water  
**Lab Sample Name:** 680-127760-1 **Sample Date:** 7/19/2016 11:00:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	120	4	4	mg/L			

**Sample Name** GSTI\_071916\_1136 **Matrix Type:** Water  
**Lab Sample Name:** 680-127760-2 **Sample Date:** 7/19/2016 11:36:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	160	4	4	mg/L			

**Sample Name** CC18\_071916\_1155 **Matrix Type:** Water  
**Lab Sample Name:** 680-127760-3 **Sample Date:** 7/19/2016 11:55:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	12	4	4	mg/L			



## Analysis Method 2540 D-2011

**Sample Name** GSTO\_071916\_1445 **Matrix Type:** Water

**Lab Sample Name:** 680-127760-4 **Sample Date:** 7/19/2016 2:45:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	8.4	4	4	mg/L			

**Sample Name** GSTC\_071916\_1515 **Matrix Type:** Water

**Lab Sample Name:** 680-127760-5 **Sample Date:** 7/19/2016 3:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	750	11	11	mg/L			

**Sample Name** GSTI\_DUP\_071916\_1136 **Matrix Type:** Water

**Lab Sample Name:** 680-127760-6 **Sample Date:** 7/19/2016 11:36:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	150	5	5	mg/L			